



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,992	03/10/2004	Yoshiki Nagasaki	027019-00001	2256

4372 7590 06/02/2005

ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER

COURSON, TANIA C

ART UNIT	PAPER NUMBER
----------	--------------

2859

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/795,992

Applicant(s)

NAGASAKI, YOSHIKI

Examiner

Tania C. Courson

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 28JUN04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 4 is objected to because of the following informalities: “the room temperature” lacks antecedent basis . Appropriate correction is required.

Claim 21 is objected to because of the following informalities: it is unclear what the body of the claim includes since there is no delineation between the preamble and the body of the claim. The applicant should include one of the following words in order to show delineation: comprising, consisting, having, etc. Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s):

- a) claim 1, line 5, “a compressing part”;
- b) claim 12, line 5, “a compressing part”;
- c) claim 15, line 5, “a compressing part” and line 9, “a suspension member”;
- d) claim 16, line 4, “a compressing part”;
- e) claim 18, line 4, “a compressing part”;
- f) claim 19, line 4, “a compressing part” and line 7, “a suspension member”.

No new matter should be entered.

Art Unit: 2859

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. One is unable to tell define what is “the room temperature”, there is no specific number attached to it, thus it can, for example, be whatever the “temperature” is during heating or it can be a lower temperature than 150° C.

5. Claims 12-14 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. One is unable to tell which is correct the drawings which clearly show the roller having the notch and the drive gear having the projection or claims 12 and 18 which state the roller having the projection and the drive gear having the notch.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 5-6, 9, 15 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasuyuki et al (JP-10267111).

Kasuyuki et al. disclose in Figures 1-2, a drive gear device comprising:

With respect to claims 1, 5-6 and 9:

- a) a thermal fixation roller (3), a heating part that heats said thermal fixation roller (abstract), a compressing part (2) that presses said thermal fixation roller (Fig. 1) and a drive gear (4) mounted on said thermal fixation roller (Fig. 1), which rotationally drives said thermal fixation roller (Fig. 1), wherein an outer diameter of said thermal fixation roller is equal to or larger than an inner diameter of said drive gear, as said heating part heats said thermal fixation roller (abstract);
- b) wherein one of said thermal fixation roller and said drive gear has a notch (3a) and the other has a projection (4a) that can be inserted into the notch (Fig. 1);
- c) wherein a frictional force engages said thermal fixation roller with said drive gear (Fig. 1);

- d) wherein said thermal fixation roller has a hollow cylindrical shape (Fig. 2).

With respect to claims 15:

- a) a thermal fixation roller (3) having a notch (3a), a heating part that heats said thermal fixation roller (abstract), a compressing part (2) that presses said thermal fixation roller (Fig. 1) and a drive gear (4) mounted on said thermal fixation roller (Fig. 1), which rotationally drives said thermal fixation roller (Fig. 1), and has a projection (4a) that is inserted into the notch of said thermal fixation roller and a suspension member (Fig. 1) secured onto said thermal fixation roller (Fig. 1).

With respect to claims 21-22:

- a) a thermal fixation roller (3) on which a drive gear (4) is mounted, said thermal fixation roller having an outer diameter equal to or larger than an inner diameter of the drive gear at the time of heating (abstract);
- b) wherein said thermal fixation roller has a hollow cylindrical shape (Fig. 2).

With respect to the preamble of the claims 1 and 15: the preamble of the claim has not been given any patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self – contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-4, 7-8 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuyuki et al. in view of Sawamura (US 5,999,789).

Kazuyuki et al. disclose a drive gear device, as stated above in paragraph 7.

Kazuyuki et al. do not disclose the following:

- a. wherein $0 \leq A - B \leq 0.2$ mm is met where A is the outer diameter of the thermal fixation roller and B is the inner diameter of the drive gear;
- b. wherein said thermal fixation roller has a temperature between 150° C and 210° C as said heating part heats said thermal fixation roller;
- c. wherein the outer diameter of said thermal fixation roller is equal to or larger than the inner diameter of said drive gear at the room temperature;
- d. wherein a thermal fixation roller is made of aluminum and has a thickness of .8mm or smaller or .6mm or smaller.

Regarding the thickness of the roller and the thickness of the drive gear : Kazuyuki et al. disclose a roller having a thickness and a drive gear having a thickness but does not disclose a

Art Unit: 2859

particular value for this parameter. However, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide wherein $0 \leq A - B \leq 0.2$ mm is met, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the “optimum range” involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefore, one skilled in the art would change the optimum range of the thickness of the roller and the thickness of the drive gear in order to suit the needs of the user of the device.

Regarding the thermal fixation roller having a temperature: Kazuyuki et al. disclose a roller having a temperature but does not disclose a particular value for this parameter. However, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide roller having a temperature between 150° C and 210° C, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the “optimum range” involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefore, one skilled in the art would change the optimum range of the temperature in order to suit the needs of the user of the device

Sawamura teaches a fixing device that consists of wherein a thermal fixation roller is made of aluminum and has a thickness of .8mm or smaller or .6mm or smaller (column 4, lines 20-41). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the drive gear device of Kazuyuki et al., so as to include a thermal fixation roller made of aluminum, as taught by Sawamura, so as to provide an acceleration during warm-up during use of the device.

With respect to claim 4: the prior art of record has not been applied to claim 4 due to the confusing description as stated above in paragraph 4.

10. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuyuki et al. in view of Sawamura.

Kazuyuki et al. disclose a drive gear device including the following:

- a) a hollow thermal fixation roller (3), a heating part that heats said fixation roller (abstract), a drive gear (4) mounted on said thermal fixation roller (Fig. 1), which rotationally drives said thermal fixation roller (Fig. 1);

Kazuyuki et al. does not disclose a roller that has a thickness of .6mm or smaller and is made of a metallic material which is aluminum.

Sawamura teaches a fixing device that consists of a roller having a thickness of .6mm or smaller and is made of a metallic material which is aluminum (column 4, lines 20-41).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the drive gear device of Kazuyuki et al., so as to include a thermal fixation roller made of aluminum, as taught by Sawamura, so as to provide an acceleration during warm-up during use of the device.

Art Unit: 2859

11. Claims 12-14, 16, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawamura in view of Kazuyuki et al. and Yamada (US 6,091,926).

Sawamura discloses a fixing device and associated method including the following:

With respect to claim 16:

- a) a fixation unit that fixes toner onto a recording paper (column 1, lines 25-35);
- b) wherein said fixation unit includes a thermal fixation roller (Fig. 4, roller 1);
- c) a heating part that heats said thermal fixation roller (column 5, lines 5-13);
- d) a compressing part that presses said thermal fixation roller and a drive gear mounted on said thermal fixation roller (Fig. 3), which rotationally drives said thermal fixation roller (Fig. 3);

With respect to method claim 20:

- a) forming a hollow cylindrical thermal fixation roller (Fig. 4, roller 1) that heats and compress the toner against the recording paper and has a first thermal expansion coefficient (column 1, lines 25-35);
- b) forming a drive gear Fig. 4, drive gear 3) that rotationally drive the thermal fixation roller (Fig. 4) Fig. 4) and;
- c) mounting the drive gear on the thermal fixation roller (Fig. 3), wherein said step of forming the thermal fixation roller and said step of forming the drive gear set an outer diameter of the thermal fixation roller and an inner diameter of the drive gear at a room temperature (Fig. 3).

Sawamura does not disclose wherein an outer diameter of a thermal fixation roller is equal to or larger than an inner diameter of a drive gear, as a heating part heats said thermal fixation roller and the drive gear has a second thermal expansion coefficient smaller than a first thermal expansion coefficient of a roller and a first mode that uses a fixation unit to record information on a recording paper, and a second mode that stop heating said fixation unit.

Kazuyuki et al. teach a drive gear device and associated method that consists of wherein an outer diameter of a thermal fixation roller is equal to or larger than an inner diameter of a drive gear, as a heating part heats said thermal fixation roller (abstract) and the drive gear has a second thermal expansion coefficient smaller than a first thermal expansion coefficient of a roller (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the fixing device and associated method of Sawamura, so as to include wherein an outer diameter of a roller is equal to or larger than an inner diameter of a drive gear during heating of the roller, as taught by Kazuyuki et al., so as to provide a tight fit during use of the device.

Yamada teaches a fixing device that consists of a first mode that uses a fixation unit to record information on a recording paper, and a second mode that stop heating said fixation unit (column 7, lines 1-3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the fixing device of Sawamura, so as to include a first mode and a second mode, as taught by Yamada, so as to provide additional modes of operation during use of the device.

With respect to claims 12-14 and 18: the prior art of record has not been applied to claims 12-14 and 18 due to the confusing description as stated above in paragraph 5.

12. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawamura in view of Kazuyuki et al.

Sawamura discloses a fixing device including the following:

- a) a fixation unit that fixes toner onto a recording paper (column 1, lines 25-35);
- b) wherein said fixation unit includes a hollow thermal fixation roller (Fig. 4, roller 1) having a notch (Fig. 4) and that has a thickness of 0.6mm or smaller and is made of a metallic material (column 4, lines 20-41);
- c) a heating part that heats said fixation roller (column 5, lines 5-13);
- d) a compressing part that presses said thermal fixation roller (Fig. 3);
- e) and a drive gear mounted on said thermal fixation roller (Fig. 3), which rotationally drives said thermal fixation roller (Fig. 3) and has a projection that is inserted into the notch of said thermal fixation roller;
- f) and a suspension member, secured onto said thermal fixation roller (Fig. 3).

Sawamura does not disclose a first mode that uses a fixation unit to record information on a recording paper, and a second mode that stop heating said fixation unit.

Art Unit: 2859

Yamada teaches a fixing device that consists of a first mode that uses a fixation unit to record information on a recording paper, and a second mode that stop heating said fixation unit (column 7, lines 1-3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the fixing device of Sawamura, so as to include a first mode and a second mode, as taught by Yamada, so as to provide additional modes of operation during use of the device.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art cited on PTO-892 and not mentioned above disclose a roller device:
Tonai et al. (US 5,517,293)

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tania C. Courson whose telephone number is (571) 272-2239. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:30PM.

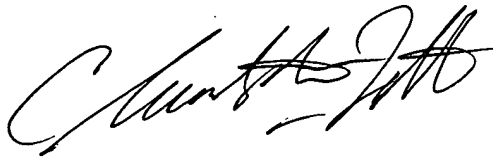
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (571) 272-2245.

The fax number for this Organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

Art Unit: 2859

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DIEGO F.F. GUTIERREZ
SUPERVISORY PATENT EXAMINER
GROUP ART UNIT 2859

TCC
May 27, 2005

CHRISTOPHER W. FULTON
PRIMARY EXAMINER